

CLAIMS AS CURRENTLY PENDING

Please amend the claims as follows:

1. (Previously Presented) A method of controlling a vehicle with a 4x4 driving system, said method comprising the steps of:

determining a potential rollover condition from dynamic conditions sensed onboard said vehicle; and

transferring driving torque both through an electronically-controlled center differential or an electronically-controlled transfer case and to the front wheels of said vehicle so as to prevent rollover of said vehicle.

2. (Previously Presented) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when the speed of said vehicle is determined to be below a predetermined low speed threshold.

3. (Previously Presented) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when a steering wheel angle of said vehicle is determined to be above a predetermined steering-wheel angle threshold.

4. (Previously Presented) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when a throttle opening is determined to be below a predetermined throttle-opening threshold.

5. (Previously Presented) A method as recited in claim 1, wherein the step of transferring said driving torque is performed when both the speed of said vehicle is determined to be below a predetermined low-speed threshold and a throttle opening is determined to be below a predetermined throttle-opening threshold.

6. (Previously Presented) A method as recited in claim 1, wherein the step of determining said potential rollover condition is performed in response to a roll-rate signal.

7. (Previously Presented) A method of controlling a vehicle with a 4x4 driving system, said method comprising the steps of:

generating a rollover signal in response to a potential rollover situation as determined from dynamic conditions sensed onboard said vehicle:

increasing a torque in front outside wheel of said vehicle through a differential in response to said rollover signal; and

braking a rear outside wheel of said vehicle in response to said rollover signal.

8. (Previously Presented) A method as recited in claim 7, wherein the step of increasing said torque is performed when a throttle opening is determined to be above a predetermined throttle-opening threshold.

9. (Previously Presented) A method as recited in claim 7, wherein the step of increasing said torque is accomplished by increasing said torque to a full torque application level.

10. (Previously Presented) A method as recited in claim 7, wherein said method further comprises the step of reducing oversteer yawing in response to said increasing said torque in said front outside wheel and also said braking said rear outside wheel.

11. (Previously Presented) A method as recited in claim 7, wherein said method further comprises the step of braking a front inside wheel of said vehicle.

12. (Previously Presented) A method as recited in claim 11, wherein the steps of increasing said torque in said front outside wheel and braking both said rear outside wheel and said front inside wheel are performed when a throttle opening is determined to be above a predetermined throttle-opening threshold.

13. (Previously Presented) A method as recited in claim 7, wherein said method further comprises the steps of determining a wheel lift condition and braking a front inside wheel of said vehicle during the determination of said wheel lift condition.

14. (Previously Presented) A method as recited in claim 7, wherein the step of increasing said torque is performed using a limited-slip differential or a viscous coupling.

15. (Previously Presented) A method as recited in claim 7, wherein the step of increasing said torque is performed using a Torsen differential.

16. (Previously Presented) A method controlling a vehicle having an active differential, said method comprising the steps of:

determining a rollover condition from dynamic conditions sensed onboard said vehicle;

in response to said rollover condition, controllably disengaging an inside wheel of said vehicle from an outside wheel of said vehicle with said active differential; and

thereafter, determining a wheel lift condition of said inside wheel.

17. (Previously Presented) A method as recited in claim 16, wherein said method further comprises the step of applying engine torque to said outside wheel so as to prevent rollover of said vehicle.

18. (Previously Presented) A method as recited in claim 16, wherein the step of determining said wheel lift condition is accomplished by actively determining wheel lift.

19. (Previously Presented) A method as recited in claim 18, wherein actively determining said wheel lift is accomplished by applying a change in torque to said inside wheel and also monitoring a change in speed of said wheel.

20. (Previously Presented) A method of controlling a vehicle having a first wheel, a second wheel, and an active differential, said method comprising the steps of:

during a potential rollover event or stability control event, determining a slip condition of said first wheel of said vehicle;

controllably reducing torque to said first wheel in response to said slip condition using said active differential; and

controllingly increasing torque to said second wheel in response to said slip condition using said active differential.

21. (Previously Presented) A method as recited in claim 20, wherein said active differential is an active center differential.

22. (Previously Presented) A method as recited in claim 20, wherein said active differential is an active axle differential.

23. (Previously Presented) A method as recited in claim 20, wherein determining said slip condition is accomplished in a traction control system (TCS).

24. (Previously Presented) A method of controlling a vehicle having an active differential, said method comprising the steps of:

determining a rollover condition from dynamic conditions sensed onboard said vehicle;

in response to said rollover condition, controllingly disengaging a front outside wheel from an inside wheel of said vehicle with said active differential;

applying a braking torque to said front outside wheel; and

applying a powertrain torque to a rear outside wheel of said vehicle so as to counter a deceleration caused by the braking of said front outside wheel.

25. (Previously Presented) A method as recited in claim 24, wherein the step of applying powertrain torque to said rear outside wheel is accomplished so as to balance a weight transfer from front to rear of said vehicle.

26. (Previously Presented) A method of controlling a vehicle having an active differential, said method comprising the steps of:

determining a possible rollover condition from dynamic conditions sensed onboard said vehicle; and

in response to said possible rollover condition, using said active differential to distribute torque between a front wheel, a front left wheel, a rear left wheel, and a rear right wheel of said vehicle so as to help prevent actual rollover.

27. (Previously Presented) A method as recited in claim 26, wherein distributing torque is at least partially accomplished by applying positive torque to a front outside wheel of said vehicle.

28. (Previously Presented) A method as recited in claim 26, wherein distributing torque is at least partially accomplished by applying positive torque to a front outside wheel of said vehicle so as to reduce understeer.

29. (Previously Presented) A roll stability control system for a vehicle having front wheels and rear wheels, said roll stability control system comprising:

a differential;

a rollover sensor operable to generate a rollover signal; and

a controller coupled to said rollover sensor and said differential;

wherein said controller is operable to control said differential so as to limit vehicle powertrain torque applied to said front wheels and thereby prevent rollover of said vehicle.

30. (Previously Presented) A roll stability control system for a vehicle as recited in claim 29, wherein said differential is an active differential.

31. (Previously Presented) A roll stability control system for a vehicle as recited in claim 29, wherein said differential is an active axle differential.

32. (Previously Presented) A roll stability control system for a vehicle as recited in claim 29, wherein said rollover sensor comprises a roll-rate sensor.

33. (Previously Presented) A roll stability control system for a vehicle as recited in claim 29, wherein said rollover sensor comprises a roll-rate sensor and a lateral-acceleration sensor.

34. (Previously Presented) A roll stability control system for a vehicle as recited in claim 29, wherein said rollover sensor comprises a roll-rate sensor, a lateral-acceleration sensor, and a vehicle-speed sensor.

35. (Previously Presented) A roll stability control system for a vehicle as recited in claim 29, wherein said rollover sensor comprises a roll-rate sensor, a lateral-acceleration sensor, a vehicle-speed sensor, and a yaw-rate sensor.